

National Aeronautics and Space Administration

**Heliophysics Subcommittee
of the
NASA Advisory Council Science Committee**

**June 30 – July 1, 2010
NASA Headquarters
Washington, DC**

MEETING SUMMARY

Barbara Giles
Executive Secretary

Roy B. Torbert
Chair

Heliophysics Subcommittee (HPS)

NASA Headquarters
Washington, DC 20546
June 30 – July 1, 2010

Meeting Summary

Contents

Wednesday, June 30, 2010.....	2
Welcome and Introduction.....	2
News from the NAC and the NAC Science Committee.....	2
Heliophysics Division Overview.....	2
Flight Program Status.....	2
Status of the LCAS Programs.....	3
Lunch Science Talk.....	3
Senior Review of Operating Missions.....	3
MOWG Reports	4
Solar and Heliospheric MOWG.....	4
Geospace MOWWG.....	4
Data and Computing Working Group.....	4
Heliophysics Science Performance Assessment, Input for the FY2009 NASA PAR.....	4
Subcommittee Input to the NAC Science Committee: ISS Science.....	5
Thursday, July 1, 2010.....	5
Review of Agenda and Work Products.....	5
Heliophysics Science Performance Assessment, Input for the FY2009 NASA PAR –	
Voting.....	6
Findings.....	7
Debrief with Heliophysics Director.....	7

Appendix A	Agenda
Appendix B	Meeting Attendees
Appendix C	Subcommittee Members

*Meeting Report Prepared By
Paula Burnett Frankel*

Heliophysics Subcommittee (HPS)

NASA Headquarters
Washington, DC 20546
June 30 – July 1, 2010

Wednesday, June 30

Welcome and Introduction

Dr. Barbara Giles, the Heliophysics Subcommittee (HPS) Executive Secretary, called the meeting to order. Dr. Roy Torbert, HPS Chair, welcomed several new members: Drs. Jeffrey Forbes, University of Colorado; Judy Karpen, NASA Goddard Space Flight Center (GSFC); Ennio Sanchez, SRI International; Karel Schrijver, Lockheed Martin Advanced Technology Center; Leonard Strachan, Harvard-Smithsonian Center for Astrophysics; and Robert McPherron, University of California, Los Angeles.

Dr. Giles reviewed the current advisory structure for science-related activities. In response to her request, Mr. Jens Feely agreed to provide a list of the Science Committee members as well as the Chairs of the other science subcommittees.

News from the NASA Advisory Council (NAC) and NAC Science Committee

Dr. Torbert relayed recent news from the NAC and the Science Committee. At the last meeting in April, there was one item requiring discussion. At the next NAC meeting, Dr. Torbert indicated that he needs be prepared provide input on two topics: possible uses of the International Space Station (ISS) in the geophysics area; and cost containment, which is a topic that the NAC will take up as “new business.”

Heliophysics Division Overview

Dr. Richard Fisher, Heliophysics Division Director, presented the Division overview. He noted that there are two new people in the Division—Drs. Bob Leamon and Dave Rusch. With respect to the budget, NASA will proceed with the plan as if there is a continuing resolution. A new U.S. National Space Policy was released this week. There are some changes within the Science Mission Directorate (SMD)—Dr. Mary Mellott will be the project scientist for the Mars Atmosphere and Volatile Evolution (MAVEN) mission and the Jupiter Uranus Neptune Outreach (JUNO) mission. Dr. Fisher noted that a draft announcement has been released for what will be called “EX missions.” NASA also plans to release a Stand Alone Missions of Opportunity Notice (SALMON). Dr. Fisher reviewed the schedule and particulars for the upcoming announcements. He noted that the current budget is sufficient to select at least one full EX mission, and NASA intends to select a second full EX mission or one or more Missions of Opportunity if there is sufficient budget authority.

Dr. Fisher showed some recent images and video from the Solar Dynamics Observatory (SDO) and discussed the first proton event of solar cycle 24. He also reported on several other events -- a recent forum on space weather, a highly leveraged Education/Public Outreach (E/PO) planetarium show, and a recent workshop on global change and the solar-terrestrial environment. NASA has signed a contract with the National Academy of Sciences (NAS) to undertake a Heliophysics Decadal Survey.

Flight Program Status

Dr. Victoria Elsbernd reported on flight program status. She showed the overall heliophysics mission schedule for developing missions, operating missions, suborbital missions, and upcoming mission opportunities. She recounted recent significant accomplishments and upcoming events in the Living With a Star (LWS) Program, the Solar Terrestrial Probes (STP) Program, the Explorer Program, the New Millennium Program (NMP), and on-going discussion on the Deep Space Climate Observatory (DSCOVR)—formerly Triana—with NOAA and DoD. In response to questions, she indicated that there has been some cost-sharing for the Clean Room at GSFC. She showed some recent photos of flight hardware in progress. All of the operating missions are “green.” Dr. Giles noted that she would try to schedule a lunchtime science talk on the Transition Region and Coronal Explorer (TRACE), which is currently in termination cycle, at the next Subcommittee meeting. With respect to missions in development, everything is green except for some Earned Value Management (EVM) schedule performance concerns on the Radiation Belt Storm Probes (RBSP) and cost reserve issues on Magnetospheric Multiscale (MMS). However, both RBSP and MMS are still within planned margins.

There is a new division in SMD—the Joint Agency Satellite Division (JASD). It will manage the Joint Polar Satellite System (JPSS) with NOAA. Dr. Elsbernd explained how the joint programs with NOAA work. The funding for the system comes from NOAA to NASA. The Administration's primary concern is the continuity of the polar-orbiting satellite. In response to questions, Dr. Fisher discussed how the Heliophysics Division views operational requirements and participates in international missions.

Status of the Low Cost Access to Space (LCAS) Programs

Dr. Cheryl Yuhas briefly introduced the Suborbital Program. Dr. Philip Eberspecker addressed the Sounding Rockets Program (SRP).

The National Research Council (NRC) Suborbital Study was recently released and made several recommendations, including restoration of the Suborbital Program and assignment of a program lead to coordinate the Program across the SMD. NASA is still working on the response.

Currently, the Balloon Program is in stand-down for flight until investigation of the recent mishap in Australia is complete and corrective actions are implemented. Recommendations are expected in late July-early August. Dr. Yuhas reported on the LCAS in the Research Opportunities in Space and Earth Sciences (ROSES) solicitation, the CubeSat Launch Initiative, and the Extended Duration Sounding Rocket concept, as well as the Headquarters Sounding Rocket Working Group. Dr. Fisher addressed some questions relative to funding for the CubeSat Launch Initiative and opportunities for it under the Explorer Missions of Opportunity. This will be the same philosophy as the ISS Missions of Opportunity. Dr. Torbert suggested an update on technology plans for this type of program at the next Science Committee meeting.

Dr. Eberspecker provided an update on the SRP. He discussed flight rates, the NASA Sounding Rockets Operations Contract (NSROC) II, educational outreach, launch range upgrades, program recovery, and programmatic challenges. The Program expects a busy year in FY 11. Heliophysics maintains about fifty percent of the sounding rocket flight rate. The NSROC II will have a five year period of performance. It is a full and open competition with a single award expected. Within the Program, there is a good spectrum of educational opportunities, including RockOn and RockSat-C. Much needed enhancements and improvements are being incorporated at the White Sands Missile Range (WSMR) and Poker. Svalbard and Kwajalein have been opened up for flight opportunities and one mission has been selected for the latter. With respect to program recovery, the inventory of payload hardware and the NSROC staffing have been restored to reasonable levels and much needed upgrades have been initiated. Some programmatic challenges include the new thrust termination systems (full redundancy is required for WSMR) and Black Brant rocket motors (combustion instability). A corrective action plan is in place for the intermediate term, and a long-term strategy is being pursued.

Lunch Science Talk

During the Lunch break, Dr. Robert McPherron gave a summary report on the Aspen Workshop on Solar-Terrestrial Inputs to Global Climate Change that was held a few weeks ago. It brought together an interdisciplinary group of people studying the Sun, solar wind, magnetosphere, and atmosphere of the Earth to discuss which inputs might play a role in the observed changes of Earth's temperature. The heliospheric field brings some input into the system, but most of these inputs were judged to be unimportant to the climate change problem, although they might affect the interpretation of tree rings and ice cores. Dr. McPherron noted the difficulties in communicating across scientific disciplines, and the problem is much worse when scientists talk to politicians and the general public. Many of the mechanisms and aspects are very difficult to explain simply.

Senior Review of Operating Missions

Dr. Jeffrey Hayes gave a status report on the Senior Review. He noted that it is about two weeks behind schedule. The Review was held in late April. The panel was specifically charged to consider the science return per dollar. Dr. Hayes indicated that he could not discuss the results at this point because they have not yet been presented to Dr. Weiler. Dr. Hayes thanked the Senior Review committee for their very hard work. He noted that there are three unofficial findings from the review: (1) don't panic—things are OK; (2) there is a sustainable model for keeping it going; and (3) results will be announced next week. Discussion on the review outcome was deferred until the next meeting.

Management Operations Working Group (MOWG) Reports

Dr. Jim Klimchuk reported on the Solar and Heliosphere MOWG and summarized the five findings from the January meeting. Dr. Torbert noted that at the last meeting, the MOWG finding on the cancellation of the Heliophysics Guest Investigator (GI) program for 2010 resulted in a Subcommittee finding that went forward to the NAC. The NASA response was that the budget forced the removal of the program, and options for reinstatement are limited. The issue of research grants duration was suggested for further discussion at this meeting. In terms of Solar C, Dr. Fisher noted that it has been a moving target. The Japanese plans are moving further out into the future. NASA will not make a decision without a comment in the Decadal Survey. Dr. Torbert observed that this topic was discussed thoroughly at the last meeting, including how it folded into the Announcements of Opportunity (AOs). At that time, the Subcommittee decided not to take any action. With respect to the Heliophysics Decadal Survey, Dr. Giles noted that the context of the National Science Foundation (NSF) Decadal Survey would be reflected in the Heliophysics Decadal Survey so that the full picture can be known. This is how NASA's task statement to the Academy is structured. She suggested that the Subcommittee take a look at the task statement on the following day. The finding regarding MOWG concerns with the new Orbit Conjunction Analysis was also taken forward to the NAC, and as a result, some actions are being taken.

Dr. Larry Kepko reported on the Geospace MOWG. The MOWG recommended that NASA target to a range of mission scopes and make stronger ride-share partnerships. The MOWG also had findings on GI and Supporting Research and Technology (SR&T) definitions, i.e., to clarify the roles of both the GI and SR&T programs. Dr. Torbert deferred this discussion to later in the meeting. With respect to the next STP mission, the MOWG encouraged NASA, with community input, to define the process by which the next STP science will be implemented. At the next meeting, the MOWG will receive presentations on the technology program, NASA's archiving policy, and applying MMS lessons learned.

Dr. Aaron Roberts gave a status report on what is happening in the Data Environment. There has been no recent Data and Computing Working Group activity due largely to the delay in the release of the Heliophysics Data Center Senior Review results. The main agenda topic for the next meeting will likely be the further evolution of the Data Environment. Dr. Roberts reviewed the Heliophysics Data Policy. It now defines "final archives" where data will reside. Missions are all going well at providing timely and useful data; the major remaining issue is final archiving. The Data Center Senior Review approved of most current activities. The panel was concerned that within the Heliophysics Data Environment (HPDE), roles and responsibilities are not defined clearly enough, and they outlined plans for changes within the HPDE. Dr. Roberts highlighted some of the panel suggestions, which will be brought back to the Working Group. It was noted that there will be a workshop in Boulder in August that will focus on computing and modeling in the heliophysics field.

Heliophysics Science Performance Assessment, Input for the FY2009 NASA Performance and Accountability Report (PAR)

Dr. Giles provided an overview on the assessment process and why it is being done. Every year, the Subcommittee does an assessment of NASA's performance in accordance with the Government Performance and Results Act (GPRA) of 1993. The primary audience is OMB and the Congressional staffers. The Division provides input to the Agency report, which is prepared by the Office of the Chief Financial Officer. Dr. Giles reviewed the FY10 annual performance goals for Heliophysics. She noted that the HPS is the "expert review panel" for three of the performance goals. The period of assessment for the FY 10 report is July 2009 to July 2010. The Subcommittee was asked to document its high-level assessment by assigning a color-code "grade" for each outcome and to provide a short explanatory text supporting its grade. Dr. Giles distributed draft input that was prepared by the project scientists, which served as resource material for the Subcommittee's use.

Dr. Torbert reviewed the process that the Subcommittee followed the previous year. He opened the floor for comments on the draft material and made assignments. Dr. Spence and Dr. Bale were assigned the paragraph "Risks to Achieving Sub-goal 3B." Dr. Bale was assigned modifications to the existing text under outcome 3B1. Dr. Forbes and Dr. Kankelborg were assigned the text on the Aeronomy of Ice in the Mesosphere (AIM) mission. The Subcommittee agreed to move AIM to Outcome 3B2 and the Interstellar Boundary Explorer (IBEX) to Outcome 3B1. Dr. Alexander was asked to draft some words on his proposed addition to the accomplishments section of Outcome 3B1. Dr. Torbert asked that the Subcommittee defer any removals until the discussion on the following day. A small subgroup offered to put together something on Hinode for Outcome 3B1. The general consensus was that outcome 3B1 should be "green." The Subcommittee provided a few comments on 3B2, and Dr. Torbert made

assignments for some suggested additional accomplishments. There appeared to be a general consensus that Outcome 3B2 would be considered “green.” After some discussion, the Subcommittee agreed to add several accomplishments to Outcome 3B3. There appeared to be general consensus that this outcome would also be “green.”

Subcommittee Input to the NAC Science Committee: ISS Science

Dr. Torbert asked the Subcommittee to review the presentation charts on “Heliophysics Utilization of the ISS.” The Heliophysics community has three open opportunities to propose payloads to the ISS. The Subcommittee discussed whether or not the proposals in response to these opportunities would offer the best gauge of the science community’s interest. Dr. Torbert asked the Subcommittee to provide examples of successful Heliophysics ISS deployments and to suggest some future possible deployments.

Before adjourning for the day, the Subcommittee discussed future meeting dates and potential agenda topics. The next meeting was tentatively scheduled for September 20-21, 2010. New items for discussion include the following: cost containment (on the agenda for this meeting on the following day); grant duration and language for solicitations; presentation and discussion on the workshop on large scale modeling; Aerospace Standard (AS) 9000; NASA’s cost accounting now that the Agency is no longer doing full-cost accounting; a presentation on the technology program; a discussion on the need for more distinction between GI and SR&T; senior review discussion; a broader portfolio of mission opportunities for geospace and creating a science team for mission planning; and possible solutions to the rolling “blackouts” in the Research and Analysis (R&A) Program. Dr. Torbert requested that the Subcommittee members send their suggestions to him and Dr. Giles.

Thursday, July 1

The Subcommittee continued work on the PAR assignments from the previous day.

Review of Agenda and Work Products

Dr. Torbert reviewed the topics on which the Subcommittee might want to make findings.

Explorer. The Subcommittee already had a finding on this topic. It was passed to Dr. Weiler and brought forward at the Science Committee meeting.

Mission Operations and Data Analysis (MO&DA) reduction. The Subcommittee previously had a finding regarding the upcoming crisis in MO&DA, and it was passed on to the Science Committee. At the next Subcommittee meeting, there should be a discussion on the overall strategy for accomplishing the science on LWS. The data analysis funding approach should be revisited. Dr. Torbert suggested an hour for this topic on the next meeting’s agenda. The discussion should address the entire MO&DA approach.

Roles and Responsibilities of virtual observatories (VxOs). Dr. Torbert deferred discussion on this topic until later in the day.

Rocket motors for the LCAS Program. Although the Subcommittee did not want to make a finding at this time, some concern was expressed regarding how the modifications to the rocket motors were being implemented. Dr. Torbert suggested that those members who were interested in this topic contact the Principal Investigator (PI) as well as Dr. Eberspacher and discuss the issue with them. NASA agreed to follow up on the Subcommittee’s concerns with the Sounding Rocket Program.

LWS MOWG. The Subcommittee questioned whether this MOWG still exists. Dr. Fisher indicated that the LWS MOWG is not active, but there is a LWS steering committee for Targeted Research and Technology (TR&T). He indicated that the Subcommittee might want to request an update on the status. Dr. Torbert agreed that the status of the LWS program should be on the agenda for the next meeting.

The Subcommittee raised some questions regarding the budget process, e.g., how the priorities are set for things like R&A, MO&DA, etc. Dr. Fisher explained the NASA budgeting process and suggested that interested members refer to the NASA appropriations bill regarding what is mandated and what is discretionary.

Cost containment. Dr. Torbert noted that this is a topic that is being taken up by the NAC as “new business,” and he queried the Subcommittee regarding what they wanted him take forward. One issue is the requirement for AS 9000, which is an extension of ISO 9000. It was originally developed for processes to build airliners. Unfortunately, there is discussion regarding how this applies to entities building flight hardware. It was noted that AS 9000 compliance showed up in the Solar Probe Plus AO. Dr. Fisher agreed that this issue should be investigated. Some universities have declared that they cannot be compliant with this standard.

Other cost issues. The Subcommittee raised the question: What effect will the move away from full cost accounting have on the science community, grants, and contracts? Dr. Giles indicated that it was her understanding that any move away from full cost accounting would only involve how civil servant labor is accounted. Dr. Fisher added that project proposals are still done to full cost accounting. On the aggregate, it is believed that the change will not make any difference. The place where there is some uncertainty regarding how it will play out is in competitions within R&A. In the planning for FY2011, the effect of the change from civil service salaries assigned to specific projects to a pool of civil service salaries has been neutral. Dr. Fisher emphasized that program money is not being “turned into” civil service salaries. Dr. Torbert indicated that he could arrange a briefing on the “Unified Labor Approach” (ULA) for the Subcommittee, including the impact of ULA on the AO process. Dr. Giles noted that this subject could also be covered at the Explorer conference.

Another cost-related topic is implementation of Earned Value Management (EVM), which is a tool that is being implemented on NASA projects. Dr. Fisher noted that the GAO is reviewing the performance of EVM. Some of the EVM systems are working well; some are not. The questions are: Is this really value-added? Is it worth the expense? It is still too early to make that call. It was noted that there have been waivers to EVM for category 3 proposals from institutions that have not yet set up an EVM system. However, EVM is a Federal Acquisition Regulation (FAR) requirement.

Heliophysics Utilization of the ISS. The Heliophysics community has three open opportunities to propose payloads to the ISS: Solar and Heliospheric SR&T Program call for proposals; Geospace SR&T Program call for proposals (proposals recently received); and Explorer Missions of Opportunity (final announcement to be released Fall 2010). These announcements offer an opportunity to gauge the scientific community’s interest in the deployment of experiments on the ISS. The subsequent peer review process offers the most robust method of assessing scientific value.

An example of a successful Heliophysics ISS deployment is the Remote Atmospheric and Ionospheric Detection System (RAIDS) for the Naval Research Laboratory (NRL). In addition, the Air Force Research Laboratory (AFRL) has flown a few sensors that have some heliospheric interest. Future ideas may include using the ISS as a platform to launch in situ diagnostic instruments.

It was noted that the community could come up with a lot of ways to use the ISS if the cost to use it (launch to orbit, resources, interfaces, etc.) would be borne by another organization. Dr. Giles noted that the ISS Payloads Office is planning an August conference on science utilization. The Subcommittee suggested sending out a community inquiry regarding potential deployments for ISS.

The Subcommittee discussed and edited the PAR draft that was prepared by Dr. Giles from inputs received from members. Dr. Giles indicated that she would send the amended draft out to the Subcommittee for review.

Heliophysics Science Performance Assessment, Input for the FY2009 NASA PAR - Voting

The Subcommittee took a formal vote on the assessment ratings for the three outcomes pertaining to heliophysics.

Outcome 3B1: Progress in understanding the fundamental physical processes of the space environment from the Sun to Earth.

A motion was made and seconded for “green.” Voting was: 16 in favor, 0 against, 0 abstentions. Passed.

Outcome 3B2: Progress in understanding how human society, technological systems, and the habitability of planets are affected by solar variability and planetary magnetic fields.

A motion was made and seconded for “green.” Voting was: 15 in favor, 0 against, 1 abstentions. Passed.

Outcome 3B3: Progress in developing the capability to predict the extreme and dynamic conditions in space in order to maximize the safety and productivity of human and robotic explorers.

A motion was made and seconded for “yellow.” The Subcommittee discussed the definitions of “green” and “yellow” and what the expectations and predictions were for this outcome. An observation was made that it would be useful to have some historical information on how the voting has gone in prior years. After substantial discussion, Dr. Torbert called for a vote on the motion for yellow. Voting was: 1 in favor, 15 against, 0 abstentions. The motion did not pass.

A motion was made for “green.” Voting was: 15 in favor, 0 against, 1 abstentions. Passed.

Findings

The Subcommittee discussed two topics for which it considered findings—(1) VxOs; and (2) theory and modeling.

Proposed finding on VxOs:

NASA invested in competitively-funded "virtual observatories" (VxOs) with a goal of creating distributed data systems to provide search, retrieval, portrayal, and analysis tools within and across the domains of heliophysics. During the creation of VxOs over the past several years, the Heliophysics Division, in parallel, refined guidelines for mission data management plans even while missions were in development. The HPS finds that the roles and responsibilities of VxOs should be better defined and more directly coordinated with missions in development in order to optimize their net value to achieving heliophysics research goals.

The Subcommittee decided that this topic needs further discussion before a formal finding can be formulated, and it was tabled until the next meeting.

Proposed finding on theory and modeling:

The array of NASA missions has greatly increased the quality and quantity of our measurements of the solar-terrestrial coupled system as we strive to deepen our understanding of complex space-weather phenomena. Understanding how phenomena develop from the Sun into geospace requires a complement of supercomputer models and theoretical investigations that transcend discipline boundaries or go in-depth into specific problem areas. The committee is concerned that the limited resources that have been allocated to data analysis, theory and modeling represents a significant impediment to scientific discovery.

There was lively debate within the Subcommittee regarding the last statement. It was noted that NASA is focused around individual missions; however, there is a “system science” that goes beyond the individual missions, and it includes data analysis, theory, and modeling. A suggestion was made to defer any finding on this topic until the Subcommittee could get a presentation on the results of the Boulder conference at the next meeting.

Debrief with Heliophysics Division Director

Dr. Torbert reported that the Subcommittee had accomplished its PAR assignment, voting three “greens” with some revised text that will go into the report. The Subcommittee also considered a couple of potential findings that generated some lively discussion: (1) the relationship of VxOs and projects; and (2) the level of support for data analysis, theory and modeling in “systems science.”

The Subcommittee has requested a presentation on the August Boulder conference at the next meeting. This will help inform the discussion on data analysis, theory and modeling. Many felt that investment has not risen to the level that is needed, and an opportunity to look at the science system as a whole may be missed. The Subcommittee wants to wait to hear about the outcome of the workshop in Boulder in August before formulating a finding.

The Subcommittee expects to discuss the VxO finding further at the next meeting. There were many viewpoints and more information is needed on the relationship of VxOs--what they are doing, what the missions are doing, what the expectations are, etc. In addition to a presentation on VxOs, it might be useful to hear from the project side at the next meeting as well.

Other comments and observations:

Both NASA and NOAA have space environment/space weather related interests. Is there any opportunity for heliophysics to gain space (perhaps as a Mission of Opportunity) on one of the joint NOAA missions? Dr. Fisher observed that NASA cannot set requirements for the NOAA missions; however, there is a regular federal coordinating committee that meets to discuss contracts, and that might be an avenue for further discussion on the subject.

Dr. Fisher stated that he is excited about the reinvigoration of the advisory committees. It should work to everyone's benefit. He thanked the members of the Subcommittee for participating in the process.

The meeting adjourned at 2:45 pm.

HELIOPHYSICS SUBCOMMITTEE MEETING**June 30 – July 1, 2010****MIC-3 (Room 3H46)****Wednesday, June 30**

8:30	Subcommittee Room Open	
9:00	Welcome, overview of agenda, introduction of new members	Roy Torbert, HPS Chair
9:15	News from the NAC and NAC Science Committee	Roy Torbert, HPS Chair
9:30	Heliophysics Division Overview	Richard Fisher, NASA HQ
10:00	Flight Program Status	Victoria Elsbernd, NASA HQ
10:15	BREAK	
10:30	Status of the LCAS Programs:	
	Program Overview	Cheryl Yuhas, NASA HQ
	Sounding Rockets	Philip Eberspeaker, Wallops FF
11:30	Discussion	Subcommittee
NOON	LUNCH IN ROOM: Bob McPherron: Summary of the Aspen Global Change Conference	
1:00	Senior Review of Operating Missions	Jeffrey Hayes, NASA HQ
1:15	MOWG Reports (15 min each)	
	Solar & Heliosphere MOWG	Jim Klimchuk, NASA GSFC
	Geospace MOWG	Larry Kepko, NASA GSFC
	Data & Computing Working Group	Aaron Roberts, NASA GSFC
2:00	Heliophysics Science Performance Assessment, input for the FY2009 NASA PAR – Overview	Barbara Giles, NASA HQ
2:15	Heliophysics Science Performance Assessment, input for the FY2009 NASA PAR – Review and Assignments	Subcommittee
3:15	BREAK	
3:30	Subcommittee input to the NAC Science Committee: ISS Science	Subcommittee
4:00	Discussion, including future meeting dates, potential agenda Topics, action items	Subcommittee
5:30	END OF DAY	

Thursday, July 1

8:00	Subcommittee Room Open	
8:30	Review of agenda and work products	Roy Torbert, HPS Chair
9:00	Heliophysics Decadal Survey Update	tbd
9:30	Discussion	Subcommittee
10:00	BREAK	
10:15	Heliophysics Science Performance Assessment, input for the FY2009 NASA PAR – Final Work and Voting	Subcommittee
NOON	LUNCH IN ROOM	
1:00	Heliophysics Science Performance Assessment, input for the FY2009 NASA PAR – Final Work and Voting Continued	Subcommittee
2:00	Subcommittee work session	Subcommittee
2:45	Debrief with Heliophysics Division Director	Richard Fisher, NASA HQ Subcommittee
3:15	ADJOURN	

Heliophysics Subcommittee (HPS)

NASA Headquarters
Washington, DC 20546
June 30 – July 1, 2010

MEETING ATTENDEES

Subcommittee Members:

Torbert, Roy, Chair
Giles, Barbara, Executive Secretary
Alexander, David
Bale, Stuart
Forbes, Jeffrey
Hudson, Mary K.
Kankelborg, Charles
Karpen, Judith
McPherron, Robert
Mewaldt, Richard
Mikic, Zoran
Sanchez, Ennio
Schrijver, Karel
Spence, Harlan
Strachan, Leonard
Swenson, Charles
Tylka, Allan

University of New Hampshire
NASA Headquarters
Rice University
University of California, Berkeley
University of Colorado
Dartmouth College
Montana State University
NASA Goddard Space Flight Center
University of California, Los Angeles
California Institute of Technology
Predictive Science, Inc.
SRI International
Lockheed Martin Advanced Technology Ctr.
University of New Hampshire
Harvard-Smithsonian Center for Astrophysics
Utah State University
Naval Research Laboratory

NASA Attendees:

Allen, Marc
Anawalt, Peifen
Backhus, Michael
Eberspaker, Phil
Elsbernd, Vicki
Feeley, T. Jens
Fisher, Richard
Goodrich, Charles
Hayes, Jeffrey
Kepko, Larry
Kearns, Jennifer
Kessel, Mona
Klimchuk, Jim
Mellott, Mary
Mikula, Julie
Newmark, Jeff
Norris, Marian
Posner, Avik
Roberts, Aaron
Rumbach, Jenny
Rusch, Dave
Sistilli, Mark
Spann, Jim

NASA HQ
NASA HQ
NASA HQ
NASA/GSFC, WFF
NASA HQ
NASA HQ
NASA HQ
NASA HQ
NASA HQ
NASA/GSFC
NASA HQ
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NASA HQ
NASA/ARC
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NASA HQ
NASA/GSFC
NASA HQ
NASA HQ
NASA HQ
NASA/MSFC

Valley, Shannon
Yuhas, Cheryl

NASA HQ
NASA HQ

Other Attendees:

Conte, Dom
DiBiosì, Lamont
Frankel, Paula
Kniffen, Donald
Marsh, Celinda
Owens, Skip

Orbital Sciences
SwRI
Harris
USRA
OMB
PSD

HELIOPHYSICS SUBCOMMITTEE

Membership List June 8, 2010

Roy B. Torbert (Chair)

Space Science Center
University of New Hampshire
Morse Hall
Durham, NH 03824
Telephone: 603-862-1638
Fax: 603-862-1915
roy.torbert@unh.edu

Barbara Giles, Executive Secretary

Heliophysics Division
Science Mission Directorate
NASA Headquarters
Mail Suite: 3R15
Washington, DC 20546
Telephone: 202-358-1762
Fax: 202-358-3987
barbara.giles@nasa.gov

.....
David Alexander
Professor of Physics and Astronomy
Department of Physics and Astronomy - MS108
Rice University
6100 Main St
Houston TX 77005
Telephone: 713-348-3633
FAX : 713-348-5143
dalex@rice.edu

Charles Kankelborg
260C EPS Building
Physics Department
Montana State University
Bozeman, MT 59717
Telephone: 406-994-7853
FAX: 406-994-4452
kankel@solar.physics.montana.edu

Stuart D. Bale
Space Sciences Laboratory
University of California
Berkeley, CA 94720-7450
(510) 643 3324
bale@ssl.berkeley.edu

Judith Karpen
6740
NASA Goddard Space Flight Center
8800 Greenbelt Road
Greenbelt, MD 20771
Telephone: 301-286-0065
judith.t.karpen@nasa.gov

Jeffrey Forbes
University of Colorado
forbes@colorado.edu

Robert L. McPherron
University of California
mcperron@igpp.ucla.edu

Mary K. Hudson
Physics and Astronomy Department
Dartmouth College
Hanover, NH 03755
Telephone: 603-646-2976
Fax: 603-646-1446
Mary.hudson@dartmouth.edu

Richard Mewaldt
MC: 220-47
Downs—210
California Institute of Technology
Pasadena, CA 91125
Telephone: 626-395-6612
Fax: 626-449-8676
RMewaldt@srl.caltech.edu

HELIOPHYSICS SUBCOMMITTEE

Membership List June 8, 2010

Zoran Mikic
Senior Research Scientist
Predictive Science, Inc.
9990 Mesa Rim Road, Suite 170
San Diego, CA 92121
Telephone: 1-858-450-6493
mikicz@predsci.com

Ennio Sanchez
SRI International
ennio.sanchez@sri.com

Karel Schrijver
Lockheed Martin Advanced Technology Ctr.
schrijver@lmsal.com

Harlan Spence
Director, Institute for the Study of Earth,
Oceans, and Space
Morse Hall
University of New Hampshire
8 College Road
Durham, NH 03824-3525
Telephone: 603-862-0322
Fax: 603-862-1915
Harlan.Spence@unh.edu

Leonard Strachan
Harvard-Smithsonian Center for Astrophysics
Strachan@cfa.harvard.edu

Charles Swenson
Professor of Electrical and Computer
Engineering
Center for Space Engineering
Utah State University
4120 Old Main Hill
Logan, UT 84322
Telephone: 435-797-2958
Charles.Swenson@ece.usu.edu

Michelle F. Thomsen
Director, Center for Space Science and
Exploration
MS D466
Los Alamos National Laboratory
Los Alamos, NM 87545
Telephone: 505-667-1210
Fax: 505-665-7395
mthomsen@lanl.gov

Allan Tylka
High Energy Solar Radiation Section
Code 7671
Naval Research Laboratory
Building 209, Room 138
4555 Overlook Avenue, SW
Washington, DC
Telephone: 202-767-2200
Fax: 202-767-6473
Allan.tylka@nrl.navy.mil